Editors Note:

Dear Members

Please accept our sincere apologies for the late distribution of the September Outlook – we appreciate you look forward to reading it every month! The delay was as a result of our hardworking administrator being hospitalised for a few days. I am pleased to report that Cindy is on the mend and hence the Outlook, which is a combined September/October issue is with you better late than never!

The Editor
YOUR NEXT BRANCH PRESENTATION

Tuesday 4th October 2016

Ashley Drive Break Pressure Tank
(part of Western Aqueduct)

Presented by:
Mr Peter Fischer
Royal Haskoning DHV

VENUE: Garden Court Hotel
Kearsney Room
Marine Parade

TIME: 17h00

DATE: Tuesday 4 October

SPONSOR:

Royal Haskoning DHV
Enhancing Society Together
Enhancing Society Together

Enhancing Society Together in partnership with clients, stakeholders and communities

Once it was enough for engineers to ask themselves: how can people’s lives be made easier? Today, in the face of unprecedented challenge and change, we believe this question no longer reaches far enough. In response, we have focused the work and passion of our engineers and consultants towards a deeper level. How do we make lives not simply easier, but better?

By working in partnership with our clients and other stakeholders, we are committed to make an impactful contribution to society through our projects. We are focused on solutions to the Global Challenges faced in respect of Urban, Water, Transport and Industry through our Business Lines of Water; Transport & Planning; Industry & Buildings; and Maritime & Aviation. The framework underpinning our focus on enhancing society rests on four simple questions. These are addressed in every project we undertake:

- Will our solution meet the demands of the stakeholders?
- Will it add value for society as well as clients?
- Are we providing the best solution now and in the long term?
- Can we deliver what is required with an optimal use of resources and fossil fuel energy?

Working alone, we cannot change the world.

Working together with our clients, stakeholders, partners and communities, we are in the process of moving towards a better future for all.

www.royalhaskoningdhv.com/za
Your August Presentation Summarised

Piled Foundations in Coastal KZN: where we are today

Article prepared by: Mr Malcom Jaros

Quality Control in Pile Construction

Local availability and widespread use of sonic integrity testing of foundation pile shafts, as presented by Venai Govender of Geosure to the Durban Branch on 2nd August, has played an important role in improving Quality Control in the piling construction industry. Structural defects, such as those that required under-pinning of the M4 highway bridge behind Natal Command, can be detected and remediated before casting the pile cap. Load capacity failures do still occur, because of obsolete or inappropriate design procedures, but can be avoided by conducting a static load test at the start of construction. The results of an early load test, which provides reliable load/deflection parameters, can reduce subsequent construction costs and avoid potentially expensive settlement damage.

Prediction of Pile Load Capacity

Load capacity is predicted by applying design procedures to soil test data. The accuracy of such predictions is clearly dependant on choice of design method and availability of sufficient, good quality, site investigation data. In the local construction industry of today, few clients or developers have the expertise needed to assess technical submissions from piling contractors, which are therefore not given sufficient attention in the procurement process. The load support capacity of a pile is derived from the surrounding ground and depends on the method used to construct the pile. It is obvious that the load capacity of a precast pile driven into the ground by a multi-tonne hammer will be different from that of a pile cast in a pre-drilled hole, even if the dimensions and structural strength of the shafts are identical.

Load capacity of a cast insitu pile depends on:

- **Method of excavation of the shaft:**
  - Open-augered – is the hole cased or uncased? If cased, is the casing advanced during excavation or afterwards?
  - Continuous Flight Auger (CFA or Augercast)
  - Concrete - with or without coarse aggregate?
- **Nature of the ground:** Is it cohesive (clayey), non-cohesive (sandy) or both?
- **Ground support:** Is the load carried mainly by end bearing or by shaft adhesion/friction?
- **Water table:** Where is it now and how far could it rise during design life of the structure?
- **Topography:** Pile in cut or fill embankment?

Dangerous Misconceptions

A paper in the SAICE Journal Vol.37-3, 1995, failed to correlate test results from 15 load tests on CFA piles in Durban. Analysis by inappropriate total stress design methods, which ignore the critical influence of groundwater on pile capacity, led to the naive and implausible conclusion that a “rule of thumb” used by a local piling contractor to calculate load capacity was “at least as accurate as classical methods” and that “pile deflection at working load appeared to be unrelated to SPT blow counts recorded in the soil profile”.

Re-analysis using effective stress design methods that account for groundwater level, soil classification, and SPT test values shows that all 15 results are consistent with, and predictable by “classical” shear strength theory. A serious error seen in recent tender designs for CFA and open-augured piles, is reliance on end bearing capacity determined using Berezantzev factors. Berezantzev himself emphasised, in the original presentation and afterwards, that his factors related only to precast piles driven into sand or gravel. End bearing of cast insitu piles in clay or sand is much lower and may need to be discounted entirely at working load displacement.

Conclusion

Quality Assurance in piling should include:

- A sonic integrity test on every pile
- A static load capacity test on at least one of the first piles installed on the site
- Authoritative evaluation of the results of all such tests before casting pile caps.

References:

- http://www.geosure.co.za/services.htm
- Plant & Jaros - Symposium on Piling along the Natal Coast, SAICE Durban 1984
Over the 22 years that Geosure (Pty) Ltd has been in business it has established itself as a reputable geotechnical and groundwater consulting practice. Experience has been gained in a variety of projects relating to industrial as well as commercial developments. The practice has a 100 percent ownership by previously disadvantaged persons. With the assistance of our clients, the process will continue together with a desire to provide both service and design excellence.

- Geotechnical Engineering Investigations & Design
- Engineering Geology
- Materials Management
- Slope Stability
- Road Centre Line Investigations
- Pile Integrity Testing
- Soil & Groundwater Characterization & Management for Industrial Sites (Pollution Risk Assessment)
- Soil Testing Services

**GEOSURE (PTY) LTD**
Pile Integrity Testing Consultants

**DON'T GAMBLE, TEST EVERY PILE!!**
Geosure carries out pile integrity testing using both the frequency response testing for smaller diameter piles and cross hole sonic logging tests for larger diameter piles and diaphragm walls. Testing provides a rapid and relatively inexpensive means of screening the structural integrity of all piles on a site, as opposed to testing a select few piles using pile load tests.

**HYDROGEOLOGICAL INVESTIGATIONS**

- GEOPHYSICAL INVESTIGATIONS
- DRILLING
- PUMP TESTING
- WATER QUALITY ANALYSIS
- CONTAMINATION ASSESSMENTS
- GROUNDWATER MONITORING
- GROUNDWATER PROTOCOLS
**OUTLOOK NEWSLETTER SEPTEMBER / OCTOBER 2016**

**SOUTH AFRICAN ROAD FEDERATION KZN Site Visit**

**Cornubia Business Hub / Flanders Interchange M41**

**Thursday, 22 September 2016**

**Directions:** From Gateway/Durban/Ballito – Take the M41/Mt Edgecombe/Phoenix off-ramp. Travel westwards towards Phoenix along the M41. Turn left on Link Road towards Flanders Drive, thereafter turning right onto Flanders Drive. Travel over the M41, turning right onto the gravel roadway. Travel ±0.5km turning left and left again at the FCE signage board to enter the driveway of the site office.

**Notes to Attendees:**

- **Parking**
  
  Due to limited parking available at the site offices, attendees are requested to minimize the number of vehicles used.

- **Safety Gear**
  
  Attendees to wear safety boots, hard hats and reflective safety vest.
  
  Limited hard hats and vests will be available at the site office.

- **Programme**
  
  13:30 – 14:00 Arrival of Attendees
  14:00 – 14:30 Project Overview Presentation
  14:30 – 14:45 Safety Induction
  14:45 – 16:00 Site Visit
  16:00 – 17:00 Drinks/Refreshments

  Note that due to the site constraints a general “walk about” will not be permitted, attendees will instead be transferred to designated stopping areas to view and discuss site activities.

  Please take note of the tight schedule and your early arrival will be appreciated.

**For bookings please contact:** sybul@sarf.org.za or tshidi@sarf.org.za
During the second half of the 20th century, in tandem with the growing demand for good roads, South African road authorities, through many members of their professional engineering staff built up a world reputation in many aspects of road engineering. This professional expertise was showcased in various international forums such as presentations and lectures to bodies such as the World Bank, the World Road Association and international conferences.

Only some of the world standard areas developed during this legacy era were:

- Road network management systems, embracing all phases of the road design, construction and maintenance activities.
- Modern concrete roads. As a matter of interest the Australian road authorities adopted, in its entirety, the South African design and construction approach for concrete roads during the mid-1980s.
- An understanding of the principles of road financing, including project prioritisation, fund allocation and viable and appropriate sources of finance. Some of this work was incorporated into the engineering syllabus at a university in Texas.
- Statistical road construction quality control.
- Heavy duty asphalt pavement layers incorporating large aggregate mixes.
- “Commercialisation” of road authorities – the concession approach.
- “Crusher run” road base courses, primarily in the then Transvaal province – the subject of a study tour by some US State Highway engineers.

Unfortunately, for various reasons much of this institutional memory has been lost to most of the current road authorities, with the exception of SANRAL, road concessionaires, and one or two of the metro road authorities. The KZN region of the South African will be presenting a seminar during October this year briefly describing our South African “road engineering legacy” and current good practice in selected sectors of the road industry in the country, in an attempt to restore, and build upon this legacy developed during a 50 year period.

**PROGRAMME**

**14th October, Elangeni Hotel, Durban**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>08h45 - 09h00</td>
<td>Welcome and Introduction:</td>
<td>Bongiwe Ntombela, KZN Regional Chairperson</td>
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<tr>
<td>09h00 - 09h30</td>
<td>The roads legacy developed during the 20th century</td>
<td>Malcolm Mitchell</td>
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<td>09h30 – 10h00</td>
<td>NDP approach to roads and economic development</td>
<td>Trueman Goba</td>
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<tr>
<td>10h00 – 10h30</td>
<td>Road network management, the current approach</td>
<td>Louw Kannemeyer</td>
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<tr>
<td>10h30 – 10h50</td>
<td>TEA BREAK</td>
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<tr>
<td>10h50 – 11h20</td>
<td>Dealing with congestion – the urban challenge</td>
<td>Logan Moodley</td>
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<tr>
<td>11h20 – 11h50</td>
<td>Traffic management and operations</td>
<td>Neil Tolmie</td>
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<tr>
<td>11h50 – 12h20</td>
<td>New developments in pavement engineering</td>
<td>Kim Jenkins</td>
</tr>
<tr>
<td>12h20 – 12h50</td>
<td>Institutional arrangements for effective road provision</td>
<td>Nazir Alli</td>
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<tr>
<td>12h50 – 13h40</td>
<td>LUNCH</td>
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<tr>
<td>13h40 - 14h10</td>
<td>The Treasury approach to road financing</td>
<td>Ulrika Rwida</td>
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<tr>
<td>14h10 - 14h40</td>
<td>Road research in the 21st century</td>
<td>Paul Nordengen</td>
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<tr>
<td>14h40 - 15h10</td>
<td>New Road Policy Directions</td>
<td>Prasanth Mohan</td>
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<tr>
<td>15h10 – 16h00</td>
<td>Panel discussion</td>
<td>Lead by Tom Mckune</td>
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</tbody>
</table>

For more information, please contact: Sybul / Tshidi on: sybul@sarf.org.za or tshidi@sarf.org.za

Early bird special till 31st August 2016: SARF Members R1100 and non-members R1550

Bookings from 1st September 2016: SARF Members R1250, and non-members R1700.00. Pensioners R350
Success does not come from eliminating risk. 

SUCCESS COMES FROM MANAGING RISK FOR GROWTH.

We help you balance your strengths against the risks that come with growth.
The SAICE Durban Branch, together with its main sponsor Naidu Consulting, hosted its 26th Annual Schools Bridge Building Competition on 4th August 2016 at the UKZN’s UNITE School of Engineering Building.

SAICE Durban takes pride in being the initiator of this successful competition, which has since been adopted by the national office and now runs in all South African branches as well as two countries outside of South Africa, namely Zimbabwe and Namibia.

Eleven high schools from the greater Durban area took part in this year’s competition, with each school having a maximum of three teams. A few weeks before the competition date, schools collected their bridge building kits consisting of wooden sticks and glue (proudly sponsored by Gidmar Mouldings cc and Pratley, respectively). On the day of the competition each constructed bridge was scrutinised to ensure that they qualified according to the competition rules. The bridges were then tested by the school children loading weights onto the testing rig, up until such point as the bridge failed.

At last year’s event, Fairvale Secondary School created Bridge Building History by becoming the first school to have teams place in all three top positions. This year History repeated itself, with the three Fairvale teams once again placing first, second and third with their bridges taking loads of 810N, 590N and 380N respectively.

The school will be representing the Durban Branch at the International Competition later this year.

For the second year, the Phil Everitt Innovation and Design Award was contested, with a team from New Forest High School taking away the honours.

The awards ceremony presented an opportunity for various individuals to give the scholars insight into the Civil Engineering Industry. Prof. Christina Trois, Dean and Head of the School of Engineering at UKZN, delivered a speech which touched on the need for Civil Engineers in our country due to the shortage of skills in the industry, and encouraged all scholars to pursue a career in Civil Engineering once they have completed matric.
Prof. Phil Everitt, a SAICE Durban Branch committee member and a professor within the UKZN Civil Engineering Department, presented on the 18 Strategic Infrastructure Projects (SIPs) in South Africa (more information available here).

Ms. Morag Horne addressed the scholars on behalf of the main sponsor, Naidu Consulting, and Mr. Josh Padayachee, also from Naidu Consulting and the Vice-Chairman of the SAICE Durban Branch Committee, gave an insight into the civil engineering industry as well as the vote of thanks to the scholars, teachers, sponsors and all involved.

A special mention and vote of thanks to the following people who were instrumental in the success of the event:

- Judges (Mr. Josh Padayachee and Prof. Phil Everitt);
- Marc Holder, responsible for the compliance checking of the bridges;
- UKZN Civil Engineering Laboratory Team, responsible for the setting up of the testing apparatus;
- SAICE Durban Branch team;
- Cindy Austen (SAICE Events Coordinator); and
- MC (Prof. Phil Everitt).

We wish the Fairvale Secondary School team all the best at the International Competition, and look forward to seeing even more scholars at next year’s instalment of the SAICE Durban Bridge Building Competition.
“Engineering Development”

SPONSOR OF THE 2016 ANNUAL SCHOOLS BRIDGE BUILDING COMPETITION

(T) 031-265-6007
(F) 031-265-6011
info@naiduconsulting.com
www.naiduconsulting.com
On the 13th of August 2016, SAICE Pietermaritzburg Branch held their Annual Bridge building competition at St Charles College. This year our Bridge Building Competition was sponsored by Royal HaskoningDHV and Mr Gerrit Visser from Royal HaskoningDHV gave a presentation to the scholars on what civil engineering is all about and how it can improve people’s lives.

There were 16 teams that entered this year’s competition, and this year the competition was very tough. 1st place went to Domino Servite School team 1 and their bridge handled a weight of 192.7kg. The 2nd place went to Domino Servite School team 2 and their bridge handled a weight of 115.9kg. The 3rd place went to Maritzburg Christian School team 1 which was very close with team 2 of Domino Servite School, with 113.9kg.

Competitions like these assistant high school learners to begin to decide what careers their want to pursue by involving themselves in bridge building. And Mr Gerrit Visser from Royal HaskoningDHV went into more detail on what a student needs to get into a field such as Civil Engineering and how it can benefit the communities these high school learners live in.

This year’s competition was a huge success and SAICE would like to thank Royal HaskoningDHV for sponsoring this event for us and making it the success that it was. Also we would like to thank Domino Servite School for sponsoring the Bridge Building trophy.
On Saturday 23 July 2016, SAICE Pietermaritzburg Branch held its annual awards banquet evening. The prestige event took place at the Golden Horse Casino, showcasing Pietermaritzburg’s most outstanding civil engineering achievements in the two categories technical excellence and community-based.

Our Sponsors
SAICE Pietermaritzburg Branch would like to take this opportunity to thank UWP Consulting for being our main sponsor for the event and to Mr Zwe Msomi - KZN Regional Director for giving such an inspirational speech. This year SAICE Pietermaritzburg branch had a number of companies sponsor the Awards evening, therefore we would also like to extend many thanks to Royal HaskoningDHV, Nathoo Mbenyane Engineers, JTN Consulting, Makhaotse, Naramsimulu & Associates (Pty) Ltd and Henwood & Nxumalo.

The Evening
This year’s SAICE Pietermaritzburg branch awards evening was an evening to remember, for the first time in the history of our branch we had an auction of two photographs that showed the companies’ construction projects. What makes this auction so special and unique is that the money raised went to a UNISA student that needed university fees to complete his degree. SAICE Pietermaritzburg branch would like to thank Icon Construction (Pty) Ltd for purchasing the photographs for R7000, we understanding the education is the key to a successful career. Also we had the branch donate R10 000 to PROTEC Pietermaritzburg Academy, a non-profit organisation (NPO) which SAICE Pietermaritzburg branch has been working together with for many years. This year Royal HaskoningDHV won the annual soccer tournament and on the awards evening they received their soccer tournament trophy.

This awards banquet evening was one to remember from the amazing auction to the great food, but most importantly the category winners, congratulations to you all and we hope to see more project submissions next year.

Category Winners
Excellent Achievement in a Community Based Project
Construction of community Infrastructure in the Southern Region - Ethekwini Municipality
Client: Ethekwini Municipality
Professional Team: Nathoo Mbenyane Engineers (Pty) Ltd
Contractors: Afrocon Construction (Pty) Ltd

Technical Excellent in a project less than R10 000 000
Cleaning of Tayside High Lift Rising Main to Biggarsberg WTW to Improve Hydraulic Efficiency
Client: uThukela Water
Professional Team: UWP Consulting (Pty) Ltd
Contractors: Kantech (Pty) Ltd

Technical Excellent in a Project Greater than R 250 000 000
South African National Roads Agency Intelligent Transport System/Freeway Management System
Client: South African National Roads Agency
Professional Team: Kimley-Horn (USA), Techso (SA) and UWP Consultants (Pty) Ltd (Sub-Consultants)
Contractors: Teti Traffic

Technical Excellent Category
South African National Roads Agency Intelligent Transport System/Freeway Management System
Client: South African National Roads Agency
Professional Team: Kimley-Horn (USA), Techso (SA) and UWP Consultants (Pty) Ltd (Sub-Consultants)
Contractors: Teti Traffic
Technical Excellent in a Project Between R10 000 000 and R 60 000 000

Mhambanyathi River Bridge Project

Client: KwaZulu-Natal Department of Transport

Professional Team: Royal HaskoningDHV (Pty) Ltd
Contractors: Icon Construction (Pty) Ltd / Msanzi Africa
Civils Zwelananathi Trading, Masizimele Project and Imvusa Trading

SAICE Pietermaritzburg Committee
(From the Left) Khulekani Magwaza, Munya Mutyora, Reshina Maharaj, Matthew Funnell, Lerato Cele, Anisa Chotoo, Oliver Rowe, Adriana Lazarova, Shanley Hay

SAICE Pietermaritzburg Soccer Champs
SAICE Durban ANNUAL GOLF DAY

Friday, 4th November 2016

Date: 4th November 2016
Venue: Mt Edgecombe Country Club, Course 1
Format: 4ball 2 scores to count
Registration: 09h00-11h30
Time: Shotgun start 12h00
Fee: R3,750
Closing date: Friday, 7 October 2016

Sponsorship opportunities:
Putting Green = R2,500 SPONSORED
Halfway House = R3,000 SPONSORED
3rd, 9th, 15th, 18th = R2,500
Standard Hole = R2,000
Longest Drive = R1,500
Closest to the Pin = R1,500
Best Score = R1,500

For Sponsorship opportunities and Four Ball bookings contact Cindy Austen on:
E: cindy@saice.org.za
T: 031 - 260 1832 / 079 294 5337
AG Traffic and Transportation Consultants (Pty) Ltd is a 100% South African black and 50% woman owned firm. We specialise in the field of traffic and transportation engineering.

Our mission at AG Consultants is to provide each of our Clients with traffic and transportation engineering excellence and the most effective solutions, and thereby making us the preferred service provider of traffic and transportation engineering solutions.

The following services, amongst other but not limited to, are provided:

Access Management Studies
Integrated Transport Planning;
Intersections capacity and network analysis and signalised intersection optimisation;
Non-Motorised Transport Studies/Infrastructure Planning;
Parking Studies and Parking Layout Design;
Public Transport Studies/Infrastructure Planning;
Road Traffic Safety Assessments; and
Traffic/Transportation Impact Assessments.

Please do not hesitate to contact us should you require any further information.

Call: +27(0) 62 766 4660
Fax: +27(0) 66 524 1038
Email: andileg@agttc.co.za
DURBAN BRANCH MEETINGS 2016

Committee and Branch Meetings take place the FIRST Tuesday of every month at the

GARDEN COURT HOTEL • MARINE PARADE • DURBAN

<table>
<thead>
<tr>
<th>MONTH</th>
<th>DATE</th>
<th>MEETING TIMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>Tuesday, 2nd</td>
<td>Committee Meeting : 4 to 5pm</td>
</tr>
<tr>
<td>March</td>
<td>Tuesday, 1st</td>
<td>Networking : 5 to 5:30pm</td>
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<tr>
<td>April</td>
<td>Tuesday, 5th</td>
<td>Branch Presentation : 5:30 to 6:30pm</td>
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<tr>
<td>May</td>
<td>Monday, 16th</td>
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<tr>
<td>June</td>
<td>Tuesday, 7th</td>
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<tr>
<td>August</td>
<td>Tuesday, 2nd</td>
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<tr>
<td>September</td>
<td>Tuesday, 6th</td>
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<tr>
<td><strong>October</strong></td>
<td>Tuesday, 4th</td>
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<tr>
<td>November</td>
<td>Tuesday, 1st</td>
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</tr>
</tbody>
</table>

**DURBAN BRANCH CHAIRMAN**
Mr Brian Kannigadu
E: brian@bmkconsulting.co.za

**BRANCH EVENTS/ADMIN**
Cindy Austen
E: cindy@saice.org.za
## DURBAN BRANCH EVENTS 2016

The following dates have been scheduled for Branch Events & Courses:

<table>
<thead>
<tr>
<th>MONTH</th>
<th>DATE</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>16th</td>
<td>ASCE Presidential Visit</td>
</tr>
<tr>
<td>June</td>
<td>10th</td>
<td>Annual Branch Awards Banquet</td>
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<tr>
<td>August</td>
<td>4th</td>
<td>Annual Schools Bridge Building Competition</td>
</tr>
<tr>
<td>September</td>
<td>5th to 6th</td>
<td>2016 SAICE Presidential Visit</td>
</tr>
<tr>
<td><strong>November</strong></td>
<td><strong>4th</strong></td>
<td>Annual Golf Day</td>
</tr>
</tbody>
</table>

### COURSES

| September | 19th | Structural Steel Design                    |
| September | 20th | Reinforced Concrete Design                 |

## PIETERMARITZBURG BRANCH EVENTS 2016

The following dates have tentatively been scheduled for Branch Events:

<table>
<thead>
<tr>
<th>MONTH</th>
<th>DATE</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>23rd</td>
<td>Water Competition</td>
</tr>
<tr>
<td>July</td>
<td>23rd</td>
<td>Annual Branch Awards Banquet</td>
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<tr>
<td>August</td>
<td>6th</td>
<td>Annual Schools Bridge Building Competition</td>
</tr>
<tr>
<td>August</td>
<td>31st</td>
<td>Annual Golf Day</td>
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<tr>
<td>Month</td>
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<td>Reference</td>
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<tr>
<td>May 2014</td>
<td>Taking civil engineering to the remote &amp; marginalized areas</td>
<td>SAICEot/01515/15</td>
</tr>
<tr>
<td>June 2014</td>
<td>Road rehabilitation the green way</td>
<td>SAICEtr/01518/15</td>
</tr>
<tr>
<td>August 2014</td>
<td>The Umhlangane Rover Bridge, Queen Nandi Drive Phase 4</td>
<td>SAICEstr14/01596/15</td>
</tr>
<tr>
<td>September 2014</td>
<td>Method of analysis using composite geogrid</td>
<td>SAICEstr14/01595/15</td>
</tr>
<tr>
<td>October 2014</td>
<td>New construction regulations</td>
<td>SAICEcon14/01652/15</td>
</tr>
<tr>
<td>November 2014</td>
<td>Wills, Trusts and Estate planning</td>
<td>SAICEot14/01633/15</td>
</tr>
<tr>
<td>February 2015</td>
<td>Confidential reporting on structural safety</td>
<td>SAICE15/01654/16</td>
</tr>
<tr>
<td>March 2015</td>
<td>eThekwini Municipality freight plan</td>
<td>SAICE15/01672/16</td>
</tr>
<tr>
<td>April 2015</td>
<td>Sea level rise—implications for civil engineers</td>
<td>SAICEwat15/01697/16</td>
</tr>
<tr>
<td>May 2015</td>
<td>Dingleton Project—relocation of Dingleton in Northern Cape by Kumba Iron Ore</td>
<td>SAICEcon15/01710/16</td>
</tr>
<tr>
<td>June 2015</td>
<td>Construction challenges on SANRAL projects</td>
<td>SAICEcon15/01731/16</td>
</tr>
<tr>
<td>August 2015</td>
<td>Presidential Visit—Malcolm Pautz</td>
<td>SAICEtr/15/01819/16</td>
</tr>
<tr>
<td>August 2015</td>
<td>The use of a Winter Seal on the MR165</td>
<td>SAICEtr/15/01818/16</td>
</tr>
<tr>
<td>September 2015</td>
<td>Rehabilitation of Mooi River Irrigation Canal Phase 1</td>
<td>SAICEwat15/01825/16</td>
</tr>
<tr>
<td>October 2015</td>
<td>SAICE Project Management &amp; Construction Division</td>
<td></td>
</tr>
<tr>
<td>November 2015</td>
<td>Reflections on implementing IRPTN C3 Corridor</td>
<td>SAICEot/15/01861/16</td>
</tr>
<tr>
<td>February 2016</td>
<td>Obtaining environmental approvals and water use licenses</td>
<td>SAICEenv16/01872/17</td>
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<td>March 2016</td>
<td>The State of Durban’s water supply going into the future</td>
<td>SAICEwat16/01898/17</td>
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<td>April 2016</td>
<td>The Expanded Public Works Programme</td>
<td>SAICEcon16/01910/17</td>
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<td>May 2016</td>
<td>ASCE Presidential Visit</td>
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<td>June</td>
<td>Tracing Developments in the use of bituminous products</td>
<td>SAICEot16/01958/17</td>
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